Internet Site Puts Massachusetts' Orthophotos as Close as Your Computer

If a picture is worth 1,000 words, what is the value of a map-quality, aerial photograph of an entire state's coastline that can be yours at the click of a button? The Massachusetts Coastal Zone Management (MCZM) Office is still learning the answer to this question, but they have seen amazing results from a project that put their entire library of orthophotographs on the Internet.

"We're finding new uses all the time," said Joe Pelczarski, MCZM regional planner. "The potential for this site is amazing."

By putting the information on the Internet, "it's out there on the web where everyone can see the whole data set. You find what you need, click one button and get it that instant. The information is quick and free," said Daniel Martin, senior consultant for Technology Planning and Management Corporation.

John Evans of the Massachusetts Institute of Technology is working on issuing the ortho-viewing software to other state agencies at little to no cost.

Martin, former data manager for MCZM, said the challenge of putting orthophotographs (digital aerial photographs that have undergone a special process that makes them clear and precise enough to take accurate measurements from) on the World Wide Web is the size of the data files. Massachusetts' library of coastal orthophotographs takes up 20 gigabytes of computer hard drive space. This is the equivalent of over 15,000 floppy disks

The web site lets users pan and zoom in on coastal orthophotographs.

worth of data. Today's Internet connections can only carry a few kilobytes of information per second, meaning that a single gigabyte would take the better part of a week to transfer.

Martin partnered with John Evans, post-doctoral associate at the Massachusetts Institute of Technology (MIT), to create the site. Using a combination of commercial and MIT-developed software, the two put together a site that is simple to use, doesn't take up too much of the user's time while it downloads, and lets the viewer pan and zoom in. It also lets the viewer download any portion of the library in a format that is compatible with both simple desktop publishing and geographic information systems (GIS).

Pelczarski said the web site has been most valuable to him in measuring shoreline changes and coordinating the environmental plans during Response 98, a hurricane practice drill.

During the drill, Pelczarski compared the aerial photos taken by the Civil Air Patrol after the "disaster" with the images already on the Internet. "On one Internet line I went back and forth between the two pictures to see pre- and post-damage," he said. "It was great and I didn't having to carry all those paper maps around."

He said the U.S. Army Corps of Engineers has used the site to help determine changes in the shoreline over time. NOAA and the U.S. Coast Guard are using the site for oil spill contingency planning, and a public utility is using it to prepare plans to build up an island in Boston Harbor.

"The benefit of having the information on the Internet is that a wide variety of people can use it," Pelczarski said. "Now when people call for information I can tell them how to access the maps themselves."

Evans said he is working on issuing the ortho-viewing software to other state agencies at little to no cost. He said,"Once the software is packaged and documented, it should be relatively easy for a skilled person to unpack and put to use."

Pelczarski said putting the aerial photos on the Internet is worth the time and expense. "The data always provides more benefits than you originally anticipate, and there are some pretty creative people out there in the real world who are using this in ways we never imagined."

To see the Internet site of Massachusetts' library of coastal orthophotographs, point your browser at http://www.coast.mit.edu. For more information, call Daniel Martin at (781) 544-3803, or e-mail him at dmartin@tpmcscituate.com. John Evans can be reached at (617) 258-0803, or jdevans@mit.edu.